means for providing a plurality of previously established response patterns, and

means for comparing the formed response pattern with at least one previously established response pattern to identify the component of the gases, liquids and solids.

8. An instrument in accordance with claim **7** wherein said means for changing solids to liquids or gases, or liquids to gases, further comprises:

a fluid inlet connected to said chamber at one end of said inlet, and a fluid outlet connected to said chamber at one end of said outlet and to said means for introducing liquids or gases to said sensing means at a second end of said outlet.

9. An instrument for identifying at least one component of gases, liquids and solids comprising:

means for changing solids to liquids or gases, or liquids to gases,

at least one condensing means for condensing gases to liquids,

sensing means including an array of sensors,

means for introducing the liquids or gases to said sensing means, said array including at least two sensors having different electrical responses to the liquids or gases dependent on the interaction of the liquids or gases with each of said sensors and upon an operational condition of at least one of said sensors,

means for changing an operational condition of at least one of said sensors to provide a plurality of different responses from said at least one sensor,

means for forming a response pattern from said sensing means upon exposure to a liquid or gas sample,

means for providing a plurality of previously established response patterns, and

means for comparing the formed response pattern with at least one previously established response pattern to identify the component of the gases, liquids and solids.

10. An instrument according to claim **9** wherein said sensing means comprises liquid sensors having differing electrical responses to liquids dependent on the interaction of liquids with each of said liquid sensors.

11. An instrument according to claim **10** wherein a said liquid sensors comprise at least one sensor selected from the group consisting of ultraviolet sensors, electrochemical sensors, refractive index sensors and conductimetric sensors.

12. An instrument for identifying at least one component of liquids and solids comprising:

means for changing solids to gases or liquids, or liquids to gases, said means including at least one heating element means for heating liquids and solids, a block of heat-resistant material having a chamber therein, a sample container adapted to fit within said chamber along with said heating element means such that said container is contacted with said heating element means, and means for sealing said chamber from the atmosphere,

sensing means including an array of sensors,

means for introducing the liquids or gases to said sensing means,

said array including at least two sensors having different electrical responses to the gases or liquids dependent on the interaction of the gases or liquids with each of said sensors and upon at least one property of the gases or liquids,

means for changing at least one property of the gases or liquids,

means for forming a response pattern from said sensing means upon exposure to a gas or liquid sample,

means for providing a plurality of previously established response patterns, and

means for comparing the formed response pattern with at least one previously established response pattern to identify the component of the liquids and solids.

13. An instrument in accordance with claim **12** wherein said means for changing solids to liquids or gases or liquids to gases further comprises a fluid inlet connected to said chamber at one end of said inlet, and a fluid outlet connected to said chamber at one end of said outlet and to said means for introducing fluids to said sensing means at a second end of said outlet.

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